Paying attention to eco-labels in purchase decisions: socio-economic and demographic determinats

Papastefanou, Georgios

Veröffentlichungsversion / Published Version
Arbeitspapier / working paper

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:
GESIS - Leibniz-Institut für Sozialwissenschaften

Empfohlene Zitierung / Suggested Citation:
Papastefanou, G. (2001). *Paying attention to eco-labels in purchase decisions: socio-economic and demographic determinats.* (ZUMA-Arbeitsbericht, 2001/03). Mannheim: Zentrum für Umfragen, Methoden und Analysen -ZUMA-.
https://nbn-resolving.org/urn:nbn:de:0168-ssoar-200684

ZUMA-Arbeitsbericht 2001/03

Paying attention to eco-labels in purchase decisions: socio-economic and demographic determinats

Georgios Papastefanou

März 2001

ISSN 1437-4110

ZUMA
Quadrat B2,1
Postfach 12 21 55
68072 Mannheim
Telefon: 0621-1246-278
Telefax: 0621-1246-100
E-mail: Papastefanou@zuma-mannheim.de

1. Introduction

One issue for changing consumption patterns according to Agenda 21, Chapter 4 (CSD, 1996) is “assisting individuals and households to make environmentally-sound purchases”. In accord with this target there are eco-labelling programs, which were implemented to support consumer decisions favoring sustainable products (e.g. the German Blue Angel, which was was created in 1977). Generally, the OECD summarizes the efficiency of the programs as positive because "... environmental labels can effectively stimulate consumer concern in a number of product categories" (OECD, 1991:30).

Only few studies report empirical results on eco-labelling effects on consumers’ purchasing. Most of the studies on efficiency gains by eco-labels do not consider the effects of the programs on the consumer's purchasing behavior (Mattoo/Singh, 1994:63). The evaluation studies usually focus on the consumers' environmental consciousness and preferences, but environmental attitudes only in part translate into manifest environmentally relevant behavior like the purchase of eco-labelled products (see G&I. 1990, Hines, Hungerford, Tomera 1984; Diekmann, Preisendörfer 1992; Langeheine, Lehmann 1986; Urban 1986; Grobe 1990).

Further, many studies on environmental behavior did not incorporate purchasing behavior being relevant for sustainability. Most of them were designed to measure environmental involvement, knowledge, consciousness, intention. Behavioral indicators being relevant for sustainability usually are oriented on specific household consumption like energy consumption, waste disposing or car use (see Diekmann, Preisendörfer 1991).

The few studies focus on eco-label related purchases report little evidence on eco-label efficency.
A paper of the United Nations Department for Policy Coordination and Sustainable Development (DPCSD, 1996) concludes that label programs have affected the consumption pattern and the production of the industries, but these effects have not been large. For example energy labels did not change purchase decisions (McNeill, Wilkie 1979; Dyer, Maronick 1988 report in a review only marginal purchasing effects)

Harkness (1995) reported that 52 % of West German women tend to take eco-label information "always or often " into consideration making purchase decisions, but 45 % of West German men. On a lower level the gender difference seem to be the same in East Germany (37 % of men, 43 % of women). Another study (IPOS 1993) from 1993 reported that 57 percent of the population pay attention to the Blue Angel, whereas only 29 percent in East Germany. But in West Germanyy 12 percent did not know the "Blue Angel", in East Germany 33 percent. Based on those knowing the "Blue Angel" label about 66 percent in West Germanyy and 43 percent in East Germany maintain to pay attention to the eco-label (IPOS 1993). These results are repeated in a study conducted by the Federal Ministry of Environment in 1996 (Bundesministerium für Umwelt, 1996). In West Germanyy 48 % report that they always or often pay attention to eco-label information, in East Germany 44 % do so.

Brockmann and Hemmelskamp (1995) tried to estimate the influence of eco-labelling program by examining the development of dispersion paints market share. But the results of Brockmann and Hemmelskamp (1995), based on time-series data, finally had to leave open whether the the german eco-label program had an effect on consumers' behavior.

Generally, there is some descriptive knowledge on eco-label oriented purchasing, but little on its social determinants. Few studies on social differentiation of sustainable behavior show that environmental consciousness is differentiated by sociostructural determinants like education, having a positive effect and age having a negative on pro environmental consciousness (Weigel 77, Stadt-Land: Langeheine, Lehmann 86, Urban 86, Grob 90). Studies made in the seventies reported also a negative effect of age on environmental concern which comprises a heterogeneous indicators of environmental concern (see van Liere, Dunlap 1980). Dunlap, Vanliere (1980) also reported a positive education effect, but inconsistent effects of income and occupational prestige on environmental concern.

In another study, gender as well as age, educational status, family with children status seemed not to have any effect on environmentally favorable intentions and behaviors (Diekmann, Preisendörfer 1991). It is not clear whether this is because of the aggregation of several behavioral indicators into one measure or because knowledge, consciousness, intention and political orientation were statistically controlled. On the other side they found a positive gender effect on consciousness, after control for age, education and presence of children, but a negative net gender effect on environmental relevant knowledge. In earlier analyses (conducted mainly in the seventies) gender effects could not be observed (Dunlap, Vanliere 1980:191) but there were too few studies for conclusion.

The present analysis wants to add results on social structural conditions of eco-labelling information processing in consumer purchases. First theoretical approaches are examined for providing insight into socio-demographic and socio-economic conditions of eco-label information processing in purchase decisions. Then the used data is described, followed by an empirical analysis of multivariate effects of socio-demographic and socio-economic variables on the reported intensity of taking eco-label information into account when making purchase decisions. Finally conclusions are made in relation to the referred theoretical approaches and to further steps of research..

2. Theoretical perspectives

The focus of the paper is on the influence of socio-economic conditions on eco-label awareness in purchase decisions. Two approaches seem helpful conceptually. The approach of Caswell and Padberg (1992) conceptualizes the relevance of eco-label awareness in the psychological process of purchase decisions by specifying the main underlining dimensions. Becker's (1965) home production approach provides ideas on socio-economic resources in the psycological decision process.

Consumer information processing appoach

Caswell and Padberg (1992) focus on the assessment of product attributes as cognitive prerequisite of purchase decisions. According their approach, the assessment of attributes of a given product is based on the consumer's information set, the consumer's examination of producers claims, the information on quality provided by the type of good and the product's quality image. The consumers information set is influenced by consumer‘s general

education, by word-of-mouth recommendations, by media advertisement, by prior experience and by the information he can get by some label.

If the producer claims to sell ecological quality, the consumer is challenged to examine these claims and to start an unfolding process, which depends on his knowledge on how claims are made, if the claims are truthful, and assuming missing claims as some indicator for poor quality. The product's image then is formed by style, packaging, and quality claims by the company via advertisement.

In this view the use of label information in making purchase is one element of the information set which influences the purchase decision via product assessment. The use of label information in purchase decisions is mainly depending on the consumer's cognitive abilities and aspirations to manage information, as well on the time restrictions he/she is confronted with or restricting him-/herself.

Home production approach

The basic assumption of the new home economic approach (Becker, 1965) is that people use goods (products and services), time and specific conditions of production (like human capital like general and occupational education, cultural ressources, or environmental situations, household technologies, similar attributes of the partner, personal characteristics etc.) to produce some specific, high-valued commodities.

Further, it assumes that people in a household are maximizing their home production process, which means that they produce a maximum of commodity by a minimum of investment in goods/services, time and the conditions of production. The amount of specific goods or services which are necessary for the commodity is restricted by market prices and by the available income for purchasing specific goods.

In an economic perspective the non-monetary elements of commodity production (time and conditions of production) can be expressed in monetary units. The money value of time spent with an activity is determined by the money which is lost by not investing that amount of time in money earning activities (opportunity costs). Conceiving human capital measured as by educational duration as a main condition of production, the monetary value can also be determined by the return rate of educational investments [1].

According this approach people want to reach a sustainable environment as an aggregate result of their several home production activities, e.g. by purchasing ecological sound products given specific needs and preferences. Now the maximization of the home based production of sustainability is restricted by the amount of eco-labelled products (taken as an indicator for environmentally favorable goods) which can be afforded, as well as by the time needed for paying attention to the sustainability attributes of the preferred products. In this case retirees, unemployed and housekeepers have more free time and therefore should produce more of the environmental

[1] In a sociological perspective the home production model could take also into account a) to non-monetary opportunity costs of time, like socially and individually valuable leisure time for self-realization, b) to non-monetary dimensions of conditions of production like cultural resources (Wippler 1990) or marriage relationship, c) to preferences for specific amount or quality of commodity relevant goods or d) sociostructural differentiation of the whole commodity production process (social functions of production).

commodity, followed by part-time employed and students. Time restrictions will be further set up by specific marital and household structures. Companionship should result in less time restrictions, because purchasing time can be split, so the time burden would be halved under the assumption of equal purchasing responsibilities. Further time costs are to be accounted for when children are members of a household. Because children care needs time depending on the age of the children, one would expect more restrictions having small children compared to those households without children or with elder children. People with young children would tend less towards paying attention to eco-labelling information than people with no or with older children.
Finally income is an important constraint for the production of the commodity "sustainable purchasing" because the amount of the sustainable goods to be purchased depends on how much money a household can invest. Assuming that eco-labelled products are more expensive, the income restriction will become more severe. So one would expect that the amount or the frequency of purchasing of eco-labelled goods will be influenced by the level of household income.

Further constraints on the purchasing of sustainable goods commodity stem from conditions of home production which are determined by factors like human capital, personal characteristics, technology. As these conditions of production are mainly influenced by skills required by the commodity target (which in the present case is mainly informational), information processing skills will be important conditions of commodity production. Because information processing skills are positively correlated with educational attainment and negatively with age, educational status should be positively correlated and age should be negatively correlated with the frequency of purchasing eco-labelled goods.
At last the home production model leads to some implications in relation to regional differences. The amount of commodity specific goods households can afford, depends also on market prices. As supply and competition will be lower in small and less transparent markets like those in middle sized cities, in contrast to big urban centers, one would expect a reduced sustainable product purchasing in medium sized cities.

Bourdieu's habitus approach

Bourdieu's approach (1979, 1983) is relevant, because it adds cultural capital as a dimension of social structure. Accordingly, cultural capital determines the "habitus" of people. "Habitus" means an internalized stable system of cognitive dispositions of perceiving and evaluating thereby integrating experiences people are making and evaluating the importance of choices they are faced with. It is a system of classification which has two consequences on peoples' behavior. First this classification system is an evaluation system, by which people classify choices as natural or desirable in relation to one's social group, second the habitus is like a blueprint or script for the organization of one's way of life. While the first function will be evoked in problematic situations, the second influence is guiding unconsciously behavioral and perceptual everyday life routines.

As an element of the habitus Bourdieu assumes a need for identity in the meaning of oneself's demarcation from others, one could call this a need for distinction and maintenance of distinction. This identity part of habitus has the same organizing influence on everyday life behavior, on material and symbolic consumption but it additionally focuses consumption and other decisions toward a specific pattern, distinguishing the person from other people. Patterns or systems of practice in life which are aimed toward distinction Bourdieu is calling

"lifestyle". The everyday life decisions lead to specific possession of goods, contributing as objective cultural capital in a feedback loop to the accumulation of a person's or family's total cultural capital.

So, in this perspective consumer behavior can be seen as symbolic consumption of goods, which expresses the habitus of consumption and signaling social distinction from others and identity to the person itself. The consumer's behavior in a social class perspective is determined by the elaboration of his consumption habitus and his need for differentiating from others by means of specific purchase information processing. So people with an elaborated habitus will usually process more information, because they learned this in school and family (they have another, a more refined informational taste) and because they gain an identity surplus. Generally, as more cultural capital leads to an elaborated habitus with a stronger need for distinction , eco-labelling information processing will be correlated with social class, other things held constant.

3. Data, indicators and method

Data

The empirical analysis is based on data, which were collected 1993 by the European Consortium for Comparative Social Surveys (COMPASS) funded by the European Union[2]. The working title was "Research into Environmental Attitudes and Perceptions in five EU Countries" (REAP). The study focused on environmental matters of special interest to advanced industrial countries. Main topics include energy use in the home, automobile use, household waste management and environmental labelling.

The program applied to five countries, Germany, Britain, Ireland, Italy and Netherlands. In each country, a stratified probability sample was interviewed; in Germany, two samples were used in order to represent the differencies between the federal states of Eastern and Western Germany.

The present analysis is restricted to the subsample of West Germany (sample size is 1011 persons), because of the differential learning experience with eco-labelling of products in a national context. In West Germany the first governmental eco-label was established in 1977 and along a growing societal debate on proenvironmental consumption the eco-labelling got a wide-known issue in mass media and market performance. In East Germany, after having joined 1990 the westgerman political and economical institutional, the time of data collection were only a short time of exposure to issues of eco-labelling and environmentalism. So, one can assume that the social differentiation process in West Germany is more unfolded than in East Germany and therefore should be separately modelled.

Indicating "eco-label awareness in purchasing""

In the REAP study respondents after being introduced by the text "*Now a few questions about environmental labelling, that is, information about how a product or its packaging may affect the environment"* were asked the

[2] COMPASS comprises five specialist social survey research organisations: EURISKO, Milan, Italy; Instituut voor sociaal-wetenschappelijk Onderzoek (IVA), Tilburg, the Netherlands; Social and Community Planning Research (SCPR), London, Great Britain; Social Science Research Centre (SSRC), Dublin, Ireland; and Zentrum für Umfragen, Methoden und Analysen (ZUMA), Mannheim, Germany.

question: *"When you are choosing a product, how often do you pay attention to any environmental labelling before deciding to buy? Always, often, sometimes, never?"*. This indicator was chosen because it is the closest one to the concept of eco-labelling based purchase behavior. For the following analysis the four scale categories were collapses into a two response scale by taking "always" and "often" to one category and "sometimes" and "never" into the other response category.

By this binary reduction one gets a more reliable indicator of "sustainable purchase behavior". As the subjectively reported behavior is part of purchase decisions which people are doing a lot of times in their everyday life, there might be great problems of accurate remembering the frequency beyond "always/often" and "never, sometimes" with a low reliability.

Socio-demographic indicators

The sociodemographic part of the questionnaire provides several indicators of socio-economic conditions of living. They were used as dummy variables, taking one of their categories as reference group (see table 3).

Table 3 : Sociodemographic indicators and regression equation predictors

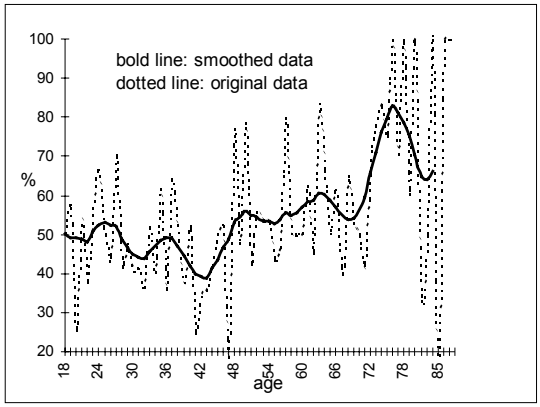
indicator	reference group	dummy variables in the regression
gender	men	women
age	people aged 71 and more	age between 18 and 27 age between 28 and 32, age between 33 and 38 age between 39 and 45 age between 46 and 55 age between 56 and 70
marital status	married	widowed, divorce, separate, single
educational duration	between 10 and 11 years	less than 8 years, between 8 and 9 years between 12 and 13 years 14 years and more
current employment status,	full-time employed	15 to 20 hrs/week employed, less than 15 hrs/week employed, helping members of family, unemployed, student, retired, housewife, self-employed, others
household income,	lowest value	household equivalent net income position, missing income values
children's age	no children in the household	children 6 years or younger in the household, children between 7 and 10 years in the household, children between 11 and 13 years in the household, children 14 years and older in the household
size of community,	more than 500 000 inhabitants	less than 2001 inhabitants between 2001 and 5000 inhabitants between 5001 and 20 000 inhabitants between 20 001 and 50 000 inhabitants between 50 000 and 100 000 inhabitants between 100 001 and 500 000 inhabitants
subjective social class	middle class	lower class, upper lower class upper middle or upper class

No transformations were necessary in the case of gender, marital status, employment status, size of community. The categories of upper middle and upper class categories of "subjective social class" were deleted because of the very few cases of people self-assigning them as upper class.

Usually age effects are estimated using age as a metric variable. By this a curvilinear relationship might be overlooked, therefore A check was done for a curvilinear correlation of age and the reporting of eco-labelling

information processing. In diagram 2 one can see a curvilinear pattern, which is getting better visible after smoothing the data by a 5 point interval moving average (bold line).

Diagram 2: proportion of people sometimes or never paying attention to eco-label information by age



Source: REAP study, own computations

Based on the smoothed age distribution (see diagram 2) one can identify six age groups with differences in eco-labelling attention proportions, so the age variable was splitted into age groups: 18 to 27 years old, 28 to 32 years old, 39 to 45 years old, 46 to 55 years old, 56 to 70 years old, and older than 70 years.

In regard to the net household income some transformation seemed necessary to reach a better operationalization for the economic capital in the meaning of **consumption possibilities** for people in a household. So a household's net income percent distance from the 50 percent poverty line was computed. Then this percentage was divided by the weighted household size. Because it is intended to indicate the per capita consumption possibilities and because of economics of scale, the household size is translated into a consumption weight according to the following correspondence (see table 4).

table 4: household size and consumption weight

household size number of persons	consumption weight
1	1
2	1.7
3	2.2
4	2.7
5	3.2
6	3.7
7	4.2
8 and more	4.7

Method

Logistic regression analysis was used to model the binary response variable of "paying attention to ecolabel information before making a purchase decision" (see Hosmer, Lemeshow 1989). In this context the dependent

variable is then conceived as the probability of always or often paying attention to eco-label information (p(A)) in logistic function of the above explicated socio-demographical and economic variables. The general form of the logistic regression model is

$$p(A)= \frac{1}{1+e^{-(b_0+b_1x_1+b_2x_2+...+b_kx_k)}}$$

Estimating this equation I will report the exp (b_i) which can be interpreted like this: Belonging to a group Xi is associated with a probability of the behavior p(A), which is exp(bi) times higher than probability of behaving in the reference group. Values of exp(bi) greater than 1 mean heightened probability, values below 1 mean reduced probability.

4. Results

Estimation results are reported in table 11.

Table 11: Socio-economic effects on the attention to eco-label information, logistic regression, exp (b).

reference group	predictor	estimated parameter logistic regression Exp(B)
men	FEMALE	1,11 (,54)
71 years or older	A18_27	1,29 (,56)
	A28_32	**2,30** (,05)
	A33_38	*1,84* (,15)
	A39_45	**3,28** (,00)
	A46_55	**2,28** (,02)
	A56_70	**1,88** (,03)
married	WIDOWED	,95 (,84)
	DIVORCE	1,20 (,62)
	SEPARAT	1,81 (,36)
	SINGLE	1,33 (,23)
no children	KID_6	1,32 (,32)
	KID7_10	,87 (,60)
	KID11_15	,85 (,52)
	KID16_	,90 (,73)
	HHINCW	1,00 (,66)
no missing income data	MISSINC	0,06 (,65)
educational duration 10-11 years	BID_7	**0,34** (,02)
	BID8_9	**0,62** (,01)
	BID12_13	1,06 (,80)
	BID14_	,94 (,80)
full employed	SELF	,67 (,17)
	PART	**2,06** (,01)
	PART2	,92 (,85)
	HELP	79,16 (,45)
	UNEMPL	1,13 (,80)
	STUDENT	*1,77* (,11)
	RETIRED	*1,49* (,14)
	HOUSE	**1,57** (,08)
	OTHERS	1,09 (,86)
more than500 thousand inhabitants	SIZE_2	,71 (,90)
	SIZE_5	1,31 (,43)
	SIZE_20	1,10 (,64)
	SIZE_50	**,45** (,00)
	SIZE_100	,58 (,20)
	SIZE_500	,90 (,58)
subjective upper middle or upper class	LO	,94 (,90)
	LOMI	**,52** (,00)
	MI	1,02 (,92)
	Constant	,16
initial -2 Log Likelihood		1400,93
Model Chi-Square Improvement		100,88
degrees of freedom		38
saturated model based pseudo R^2		,13

gender effects

After controlling for the socio-demographic characteristics described above, the probability difference between men and women drops to 1.16 being no more significant. This means that the difference between men and women can be explained by different socio-demographic composition of the gender groups.

Therefor one can say that women report more attention to eco-labelling considered purchasing because they are more often in part-time employment or housewife activities than men. Maybe this situations leave more free time and thereby put less restrictions on deliberate purchasing. This leads us to the assumption that it is the time

restriction might be responsible for the differencies between men and women and for their tendency to take eco-label information into account in purchase decisions.

age effects

The difference between the age groups remain stable after controlling for employment, household income, family cycle, size of town or subjective social class. As a net effect one can find that people aged over 38 years are more inclined to report the eco-labelling information processing than the very old, but the difference to the over 70 years old is getting reduced with aging. People, aged below 38 seem not to have more or less interest in eco-labelling information than the oldest people. Using cross-sectional data we cannot decide if this is an age effect or a cohort effect. The fact that there is some specific age group (those between 28 and 32) with a peak in subjective relevance of eco-labelling points to the existence of cohort effects.

The bivariate observable widows' lower probability of being attentive to eco-labelling information is mainly due to the fact that they are aged, low educated and self-assigned to a lower or lower middle class.

educational effects

Educational status, measured by the time having been in the educational system seems to be important for the eco-labelling attention.
Independent of other socio-demographic characteristic one can say that lower education leads to lower eco-information processing not because of less money, worse self-assigned subjective social class or other economic bad conditions. Thus the conclusion could be drawn that cognitive aspects of education are the underlying constraining factors of information processing behavior.

subjective social class effects

The nonlinear bivariate relationship holds true after controlling for economic or socio-demographic characteristics. Controlling for educational status reduces the lower middle class effect, but it still remains high and highly significant. This remarkable change of the subjective social class effect from a 66 percent reduced eco-labelling attention probability to 45 percent difference due to educational effects is consistent with the results of the educational effect. This means that people assigning themselves as lower middle class people usually have a lower educational status.
After controlling for all the other socio-demographic conditions the social class effect remains stable, so we can conclude that the factors underlying social class effect might be the interconnection of cultural capital, habitus, need for distinction and social capital as it is conceived by Bourdieu.
People with low cultural capital are people with little interests and abilities in information processing. Their understanding of the relevance of eco-labelling information might be low as well as their willingness to take it into account when purchasing. It might be that their purchase behavior is more routinized/habitual and less elaborated than that of people with a great stock of cultural and social capital. Additionally one could assume that goods purchased by middle class people belong to product markets with more eco-labelling claims by the producers.

employment status effects

Eployment status is a main condition of living, it defines available time, money and social contact. This constraining effects seem to be relevant also for eco-labelling information processing in purchase decisions. The effects of employment status one can observe by looking on the eco-label proportions of people which are part-time employed (63 %), students (61 %) or (to a less extent) if they mainly are doing house caring activities (54%). These are significant differences to the full-employed people group (46 %). The eco-labelling attention difference between full and part-time employed is independent from other socio-economic or socio-demographic conditions of living. After controlling for educational status or subjective social class the positive part-time employment effect is even getting greater, which means that there is genuine factor underlying part-time versus full-time employment activities.

This could be caused by the time budget differences, with part-time employed people having more free time than full-time employed. As more women are part-time employed than men controlling for gender leads to a reduced part-time effect on eco-labelling attention, but the reduction is only moderate.

Being student, one has more time to be organized freely than full-time employed people have. This seems to facilitate the tendency of being attentive towards eco-labelling information. The “student effect” as an effect of more free time seems to be somewhat depressed because students frequently are singles, live in big cities and are of younger age. After controlling for these characteristics (especially age) we find a remarkable rise of the effect on the eco-label attention from 180 percent to 220 percent.

Of course , because the student employment status is confounded with the educational status it is difficult to interpret the student effect only as an effect of more free time. Alternatively it could be interpreted as consequence of the students' higher cognitive and cultural abilities. The available data do not allow to decide between these alternatives.

At last it is worthwhile looking at the employment status of being occupied mainly in housekeeping activities. As mainly women have this employment status, the housekeeping effect can be replaced by a gender effect. But as we can see in the discussion above the housekeeping effect on eco-label attention is greater than the gender effect, and - more important - the effect net of the other constraining characteristics remains significant, having a moderate increase in eco-labelling attention compared to those being full-employed. But after controlling for children's age , which means that most of housekeeping persons being married women with young age children, the “housewife effect” turned to be no more significant, because being housewife usually is correlated with caring for young children. This indicates that the moderate positive effect of being housewife is confounded with a positive effect of having small children.

In sum there is a positive net effect of housekeeping on the willingness to pay attention towards eco-label information but it is difficult to interpret this as free time effect or as a kind of cultural capital effect by having specific interests of caring for young children.

children's age effect

An important constraining factor in household composition is the presence of children, depending on their age, because this determines not only economic and time demands but also interest and obligations in care related issues.

If the children are below 6, which in West Germanyy usually means that they are preschoolers, people tend to report more attentiveness to eco-labelling than people with no or with children older than six years (59 % versus about 50 %). This eco-labelling attention difference between those with having preschool children and not having preschool children can be interpreted as reflecting different concern with health and nurturing related issues. The moderate gross effect of having young children is partially due to socio-economic and demographic characteristics: namely partially because adult middle aged people will have preschool children, partially because the higher educated people will have postponed the family formation and now being in the early family cycle with young children, partially because having small children in many cases inhibits full time employment and favors housekeeping activities, and partially due to subjective social class, because middle class people might have a postponed family formation. Age seems to be the most important of these confounding factors.
As the variables age, education, social class and employment status have strong confounding influence on the children's age effect it might be that controlling them simultaneously there would remain no young children effect any more. The results confirm this hypothesis. This means that preschool children in the household are not by itself a constraining or motivating factor for more attention toward eco-label information.

size of residence effects

The size of residence as it is reported by the respondents is correlated with the tendency towards reporting eco-labelling information processing in purchase decisions. But there is no linear relationship in the meaning of a contrast of rural versus metropolitan residence type. Only in the group of people residing in cities of size between 51 and 100 thousand, (medium sized towns) there are significant lower proportions of attention towards eco-labelled products (30 to 35 %). Villages, small towns and big towns do not differ from very big towns in relation to the proportion of eco-label considerations (about 50 percent).

Controlling these variables the negative medium town size effect remains stable at a rate of 50 to 60 percent reduction of the probability of reporting eco-label considerations in purchase decisions.

This effect can be interpreted either as a reflection of different infrastructure and supply markets depending on the size of the town, or reflecting regional differences, which are hidden by the global size indicator. For explaining this negative medium size effect further analysis with regional information has to be carried out.

5. Summary and conclusion

The aim of this paper was to examine social correlates of eco-labelled product attention in making purchase decisions. Consumer information behavior Theory as well as the hoome production and the cultural class approach were introduced. The consumer information behavior approach on product labelling underlined cognitive but also time opportunities as main working factors, aspects of purchase information processing which are to some extent also relevant in the other approaches. By this theoretical frame of reference it was possible to specifiy social structural (socio-demographic and socio-economic) conditions of living as situations restricting and faciliating sustainable consumer behavior.

Main social conditions of eco-label information attention proved to be the following:

- age (with highest inclination in the age group of 38 to 42, with rising before and declining after this age, and with lowest inclination in those aged above 70 years). In part this curvilinear relationship might be reflecting of declining information processing capabilities and motivation.
- employment, with part-time employment, housewife or student activities having the highest inclination toward eco-labelling, because these groups comparatively have most time not occupied by work. These results seem to be easily interpretable with household production theory, because people in these living conditions have a lot of free time and therefore little costs in the commodity production process. But the theory's claim is to specify their time costs by money shadow costs or opportunity costs. In this case the results do not make sense, as for part-time employed the opportunity costs must be highest. On the other side full-time employed would not have faced that more time/money costs by information processing because their money earned is regulated by a fixed working hours schedule. So they would not lose money if they invested more time into purchase information processing. But they would lose time for recreation and leisure activities. This interpretation points to non-monetary costs like lack of convenience, comfort, fullfilment of leisure or recreation needs or efforts of cognitive veridicality. Another approache might be relevant in this context, namely the theory of planned behavior (see Ajzen 1988) because it stresses cognitive and motivational facors of deciding. On the other side self-employed do not differ from full-time employed people, even one can assume that for them free time is money lost time
- size of residence, people living in cities between 21 and 50 thousand inhabitants have a higher disposition than rural inhabitants and lower than those living in bigger and big cities. This points to regional differentiated markets and retail infrastructure. A regional analysis with low level regional units would give information on the charactiristics of these market conditions.
- education, lower education is associated with reduced attention toward eco-label products. This result is partly consistent with cognitive restrictions approach, but one would then also expect differences between middle and high level of education, which are not found. Interpreting it as human capital difference the same problem of interpretation. Only in a cultural class interpretation one could say that there is no linear but a qualitative difference between lower and higher cultural capital classes. This interpretation gets support by the subjective social class effect.
- subjective social class, people in the lower middle class have a reduced inclination toward eco-label produced awareness, no differencies are found between middle, upper middle and upper class. This

result is in favor of cultural class reproduction approach and for self-identity as factor in decision process. Assuming that the main line of social self-identity between middle or higher and non middle social class. As Bourdieu's analysis is focusing on upper middle or upper classes the results found here would be not in favor of this part of his approach. But the inconsistency might be due to the fact that his empirical analysis relies on data of the 1970ies, where social differentiation is mainly marked by not belonging to upper class. In the context of expanded education and increased wealth middle class has become a general status ascription. Social differentiation might be now mainly based on differences between sub-middle and middle class status.

- The analysis shows that bivariate findings that females and persons having children below 6 years are more inclined towards sustainable purchasing are not genuine effects, but the result of confounding with age (having little children) and part-time employment (females).
- the same holds true for the bivariate widowhood effect which seems to be a reflection of age and education
- equivalent household income reflecting purchase restrictions had no effect, neither bivariate nor multivariate, which points against a strict monetary restrictions approach of household production function.

These results showed that sociodemographic conditions of living do work as ressources/barriers of sustainable purchase decisions.

Generally the results support the assumptions that this is related to cognitive and time ressources, not because of monetary importance but because of cognitive miser and comfortability, an action model containing cognitive aspects as well as motivational aspects. A joint application of a cogntive decision model like the theory of planned behavior and a motivational model like that of Veenhoven might be a step towards a realistic understanding of sustainable relevant consumer purchase behavior. This interpretation does not support the relevance of monetary factors, but this means not that pricing of eco-labelled products is not important for pruchasing. Further research is needed also on the willingness to pay additional premium and to find out if the free riding problem exists in the purchase of environmentally friendly (green) goods. Additionally, applying a cognitive-motivational model to the eco-label attention should incorporate the working of habitual purchase information processes, which are partly established and maintained by cultural class reproduction.

References

Adlwarth, Wolfgang, Wimmer, Frank, 1986?: Umweltbewußtsein und Kaufverhalten - Ergebnisse einer Verbraucherpanel-Studie. S. 166-192 in: Sonderdruck aus Jahrbuch der Absatz- und Verbrauchsforschung.

Ajzen, Icek, 1988: Attitudes, Personality, and Behavior. Chicago, Dorsey.

Becker, Gary S., 1965: A theory of the allocation of time. Economic Journal, 75, S. 493-517.

Boudon, Raymond, Bourricaud, Francois, 1992: Diffusion. S. 84-91 in: dies.: Soziologische Stichworte: Ein Handbuch. Opladen: Westdeutscher Verlag.

Bourdieu, Pierre, 1982: Die feinen Unterschiede. Kritik der gesellschaftlichen Urteilskraft. Frankfurt a. M.

Bourdieu, Pierre, 1983: Ökonomisches Kapital, kulturelles, Kapital, soziales Kapital. S. 183-198 in: Kreckel, Reinhard (Hrsg.): Soziale Ungleichheiten, Sonderband 2 der Sozialen Welt. Göttingen.

Brockmann, Karl Ludwig, Hemmelskamp, Jens, 1995: Umweltzeichen und Verbraucherverhalten - Wie "grün" ist der Blaue Engel? ZEW-Discussion Paper No. 95-25. Mannheim.

Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (Hrsg.), 1996: Umweltbewußtsein in Deutschland 1996. Ergebnisse eine repräsentativen Bevölkerungsumfrage, Berlin

Department for Policy Coordination and Sustainable Development (DPCSD), 1996: Eco-labelling. gopher://gopher.un.org:70/00/esc/cn17/1995-96/finance/ecolabel.txt

Diekmann, Andreas, 1996: Homo ÖKOnomicus. Anwendungen und Probleme der Theorie rationalen Handelns im Umweltbereich. In: Diekmann, Andreas, Jäger, Carlo, (Hrsg.): Umweltsoziologie. Sonderband der Kölner Zeitschrift für Soziologie und Sozialpsychologie. Opladen: Westdeutscher Verlag (im erscheinen).

Diekmann, Andreas, Preisendörfer, Peter, 1991: Umweltbewußtsein, ökonomische Anreize und Umweltverhalten. Schweizerische Zeitschrift für Soziologie, S. 207-231.

Dunlap, Riley E., van Liere, Kent D., 1980: The Social Bases of Environmental Concern: A Review of Hypotheses, Explanations and Empirical Evidence. Public Opinion Quarterly, 44, S. 181-197.

Dyer, R. F., Maronick, T. J., 1988: An evaluation of consumer awareness and use of energy labels in the purchase of major appliances: a longitudinal analysis. Journal of Public Policy and Marketing, 7.

Global Ecolabelling Network, 1996: homepage, http://www.interchg.ubc.ca/ecolabel/gen.html

G&I, 1990 siehe: Adlwarth/Wimmer

Grob, Alexander, 1990: Meinungen im Umweltbereich und umweltgerechtes Verhalten. Dissertation an der Universität Bern. Bern (mimeo).

Harkness, Janet, 1994: Umweltgerechtes Verhalten im häuslichen Bereich. S. 133-150 in: Braun, Michael, Mohler, Peter Ph. (Hrsg.): Blickpunkt Gesellschaft 3. Einstellungen und Verhalten der Bundesbürger. Opladen: Westdeutscher Verlag.

Hosmer, Lemeshow, 1989: Applied Logistic Regression. New York: John Wiley & Sons.

(see http://www.iisd.ca/linkages/vol05/0545003e.html)
http://www.iisd.ca/linkages/vol05/0545003e.html

IPOS (Institut für praxisorientierte Sozialforschung), 1993: Einstellungen zu Fragen des Umweltschutzes 1993. Nr. 876/875 o. O.

Langeheine, Rolf, Lehmann, Jürgen, 1986: Ein neuer Blick auf die soziale Basis des Umweltbewußtseins. Zeitschrift für Soziologie, 15, S. 378-384.

Witherspoon, Sharon, Mohler, Peter Ph., 1995: Report on Research into Environmental Attitudes and Perceptions (REAP). EU Contract EV5V-CT-92-0172. *Mannheim?*.

Mattoo, A., Singh, H. V., 1994: Eco-Labelling: Policy Considerations. Kyklos, 47, S. 53-65.

McNeill, D. L., Wilkie, W. L., 1979: Public policy and consumer information: impact of the new energy lables. Journal of Consumer Research, 6, S. ...

OECD, 1991: Environmental Labelling in OECD Countries. Paris.

Robinson, Nicholas A. (Hrsg.), 1993: Agenda 21: Earth's Action Plan. IUCN Environmental Policy & Law Paper No. 27. New York - London - Rome: Oceana Publications, Inc.

Töpfer, Klaus, 1990: Das Umweltzeichen im Kontext einer vorsorgeorientierten Umweltpolitik. S. 11-16 in: Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (Hrsg.): Dokumentation zur internationalen Konferenz zum Umweltzeichen.

Urban, Dieter, 1986: Was ist Umweltbewußtsein? Exploration eines mehrdimensionalen Einstellungskonstrukts. Zeitschrift für Soziologie, 15, S. 363-377.

Veenhoven, Ruut, 1991: Is happiness relative? Social Indicators Research, 20, 333-354.

Weigel, R. H., 1977: Ideological and demographic correlates of proecology behavior. Journal of Social Psychology 103, S. 39-47.

Wimmer, Frank, 1993: Empirische Einsichten in das Umweltbewußtsein und Umweltverhalten von Konsumenten. S. 44-78 in: Wagner, Gerd Rainer (Hrsg.): Betriebswirtschaft und Umweltschutz. Stuttgart: Schäffer-Poeschel.

Wippler, Reinhard, 1990: Cultural resources and participation in high culture. S. 187-204 in: Hechter, Michael, Opp, Karl-Dieter, Wippler, Reinhard (Hrsg.): Social institutions: their emergence, maintenance and effects. Berlin/New York: De Gruyter.